

Cycle view of the study programme

B1 Or Th Pr Au Cr

Depending on your track record or your professional/research focus, some prerequisites/corequisites of your first year program might appear in bloc 2. You are therefore invited to go through the list of courses suggested in bloc 2 even if you enroll for the first time in this master program.

Students choosing this focus shall select, in addition to 10 credits of compulsory courses, 50 credits of elective courses inside or outside the focus. However, for his/her whole master program (block 1 and block 2), a total of 20 credits of options must be taken inside the focus. The regulation allows students to choose elective courses during the block of their choice, in accordance with the prerequisites and co-requisites. Students must also be attentive to schedule constraints.

Compulsory courses within the focus (B1 : 10Cr)

INFO0031-1	<i>Network Engineering</i> (english language) - Benoît DONNET, Guy LEDUC - [12h Labo., 30h Proj.] Corequisite : INFO0010-4 - Introduction to computer networking	B1	Q2	30	-	[+]	5
INFO0045-3	<i>Introduction to computer security</i> (english language) - Benoît DONNET - [10h Labo., 30h Proj.] Corequisite : INFO0010-4 - Introduction to computer networking INFO0902-1 - Structures des données et algorithmes	B1	Q1	30	6	[+]	5

Optional courses within the focus (B1 : 5Cr, B2 : 15Cr)

Choose 20 credits in the following list : (B1 : 5Cr, B2 : 15Cr)

INFO0064-2	<i>Embedded systems</i> (english language) - Bernard BOIGELOT	-	Q1	25	20	-	3
INFO2055-1	<i>Embedded systems project</i> (english language) - Bernard BOIGELOT - [60h Proj.] Corequisite : INFO0064-2 - Embedded systems	-	Q2	-	-	[+]	2
INFO2051-1	<i>Object-oriented programming on mobile devices</i> (english language) - Laurent MATHY - [90h Proj.]	-	Q1	15	10	[+]	5
INFO0056-1	<i>Securing Networks</i> (english language) - Guy LEDUC - [12h Labo., 30h Proj.] (Even years) Corequisite : INFO0010-4 - Introduction to computer networking INFO0045-3 - Introduction to computer security	-	Q2	30	-	[+]	5
INFO0939-1	<i>High performance scientific computing</i> (english language) - Christophe GEUZAINÉ - [20h Proj.]	-	Q1	30	15	[+]	5
INFO8002-1	<i>Topics in Distributed Systems</i> (english language) - Bernard BOIGELOT, Christophe DEBRUYNE, Pascal FONTAINE, Guy LEDUC, Laurent MATHY - [35h Proj.] (Odd years)	-	Q2	30	-	[+]	5
INFO8012-1	<i>Digital Forensics</i> (english language) - Benoît DONNET, Laurent MATHY - [12h Labo., 30h Proj.] (Odd years) Corequisite : INFO0010-4 - Introduction to computer networking INFO0085-1 - Compilers INFO0940-1 - Operating systems	-	Q2	30	-	[+]	5
INFO8011-1	<i>Network infrastructures</i> (english language) - Benoît DONNET, Guy LEDUC, Laurent MATHY - [8h Labo., 30h Proj.] Corequisite : INFO0010-4 - Introduction to computer networking	-	Q1	30	-	[+]	5
INFO8013-1	<i>Advanced Computer Security</i> (english language) - Benoît DONNET, Laurent MATHY - [20h Labo., 30h Proj.] (Even years) Corequisite : INFO0045-3 - Introduction to computer security	-	Q2	20	-	[+]	5
INFO9016-1	<i>Advanced Databases</i> (english language) - Christophe DEBRUYNE -	-	Q2	24	20	[+]	5

Compulsory courses from the core curriculum (B1 : 35Cr, B2 : 25Cr)

INFO0085-1	<i>Compilers</i> (english language) - Pascal FONTAINE - [75h Proj.] Corequisite : INFO0940-1 - Operating systems INFO0012-2 - Computation structures INFO0902-1 - Structures des données et algorithmes INFO0016-1 - Introduction to the theory of computation	B1	Q2	25	-	[+]	5
ELEN0062-1	<i>Introduction to machine learning</i> (english language) - Pierre GEURTS, Louis WEHENKEL - [40h Proj.]	B1	Q1	30	5	[+]	5
INFO0016-1	<i>Introduction to the theory of computation</i> (english language) - Quentin LOUVEAUX	B1	Q1	26	26	-	5
ELEN0060-2	<i>Information and coding theory</i> (english language) - Louis WEHENKEL - [30h Proj.]	B1	Q2	30	15	[+]	5
PROJ0010-1	<i>Software project engineering and management</i> (english language) - Benoît DONNET, Bernard HAUZEUR, Guy LEDUC, Laurent MATHY - [280h Proj.] Prerequisite : INFO0062-1 - Object-oriented programming Corequisite : INFO0010-4 - Introduction to computer networking	B1	TA	20	-	[+]	10
GEST3162-1	<i>Principles of management</i> (english language) - Michaël PARMENTIER - [25h Proj.]	B1	Q1	30	-	[+]	5
ATFE0002-1	<i>Master thesis</i> (english language) - COLLÉGIALITÉ, Laurent MATHY - [750h Proj.]	B2	TA	-	-	[+]	25

Optional courses from the core curriculum (B1 : 10Cr, B2 : 20Cr)

Choose remaining credits in the lists below : (B1 : 10Cr, B2 : 20Cr)

[...] With the agreement of the jury, choose 5 credits in any course programme of the University or from the UNIC course catalog.

Computer Science foundation courses

The following courses are corequisite to some compulsory courses of the master program. They must be taken as a priority, unless they were already taken as part of the bachelor in computer science, or unless the corresponding knowledge and skills have been acquired previously (Are involved in these courses bachelors in "Informatique de gestion" and "Informatique et systèmes who must take these courses during the block 1").

MATH0500-1	<i>Introduction to numerical algorithmic</i> - Quentin LOUVEAUX - [6h Labo., 45h Proj.]	B1	Q1	24	14	[+]	5
INFO0902-1	<i>Data structures and algorithms</i> - Pierre GEURTS - [40h Proj.]	B1	Q2	26	20	[+]	5
INFO0010-4	<i>Introduction to computer networking</i> (english language) - Guy LEDUC - [12h Labo., 40h Proj.]	B1	Q1	32	2	[+]	5
INFO0012-2	<i>Computation structures</i> (english language) - Pascal FONTAINE, Laurent MATHY - [40h Proj.]	B1	Q1	26	26	[+]	5
INFO0940-1	<i>Operating systems</i> (english language) - Laurent MATHY - [30h Proj.]	B1	Q2	30	6	[+]	5
INFO8006-1	<i>Introduction to artificial intelligence</i> (english language) - Gilles LOUPPE - [45h Proj.]	B1	Q1	25	20	[+]	5

Computer systems security

INFO0031-1	<i>Network Engineering</i> (english language) - Benoît DONNET, Guy LEDUC - [12h Labo., 30h Proj.]	-	Q2	30	-	[+]	5
INFO0045-3	<i>Introduction to computer security</i> (english language) - Benoît DONNET - [10h Labo., 30h Proj.]	-	Q1	30	6	[+]	5

Corequisite :

INFO0010-4 - Introduction to computer networking

INFO0012-2 - Computation structures

INFO0902-1 - Structures des données et algorithmes

INFO0056-1 *Securing Networks* (english language) - Guy LEDUC - [12h Labo., 30h Proj.] (Even years) - Q2 30 - [+] 5

Corequisite :

INFO0010-4 - Introduction to computer networking

INFO0045-3 - Introduction to computer security

INFO0939-1 *High performance scientific computing* (english language) - Christophe GEUZAINÉ - [20h Proj.] - Q1 30 15 [+] 5

INFO8002-1 *Topics in Distributed Systems* (english language) - Bernard BOIGÉLOT, Christophe DEBRUYNE, Pascal FONTAINE, Guy LEDUC, Laurent MATHY - [35h Proj.] (Odd years) - Q2 30 - [+] 5

INFO8012-1 *Digital Forensics* (english language) - Benoît DONNET, Laurent MATHY - [12h Labo., 30h Proj.] (Even years) - Q2 30 - [+] 5

Corequisite :

INFO0940-1 - Operating systems

INFO0010-4 - Introduction to computer networking

INFO0085-1 - Compilers

INFO8011-1 *Network infrastructures* (english language) - Benoît DONNET, Guy LEDUC, Laurent MATHY - [8h Labo., 30h Proj.] - Q1 30 - [+] 5

Corequisite :

INFO0010-4 - Introduction to computer networking

INFO8013-1 *Advanced Computer Security* (english language) - Benoît DONNET, Laurent MATHY - [20h Labo., 30h Proj.] (Odd years) - Q2 20 - [+] 5

Corequisite :

INFO0045-3 - Introduction to computer security

Intelligent Systems

INFO8010-1 *Deep learning* (english language) - Gilles LOUPPE - [60h Proj.] - Q2 30 - [+] 5

Corequisite :

ELEN0062-1 - Introduction to machine learning

ELEN0016-2 *Computer vision* (english language) - Anthony CIOPPA, Marc VAN DROOGENBROECK - [50h Proj.] - Q1 30 10 [+] 5

INFO0948-2 *Introduction to intelligent robotics* (english language) - Pierre SACRÉ - [80h Proj.] - Q2 30 4 [+] 5

INFO9015-1 *Logic for Computer Science* (english language) - Pascal FONTAINE - Q1 24 20 - 5

INFO2049-1 *Web and Text Analytics* (english language) - Ashwin ITTOO - Q1 30 - - 5

Corequisite :

ELEN0062-1 - Introduction to machine learning

GBIO0002-1 *Genetics and bioinformatics* (english language) - Franck DEQUIEDT, Kristel VAN STEEN - [15h Proj.] - Q1 30 15 [+] 5

INFO8004-1 *Advanced Machine learning* (english language) - Pierre GEURTS, Gilles LOUPPE, Louis WEHENKEL - [20h Proj.] - Q2 25 - [+] 5

Corequisite :

INFO8010-1 - Deep learning

ELEN0062-1 - Introduction to machine learning

INFO9014-1 *Knowledge representation and reasoning* (english language) - Christophe DEBRUYNE - [45h Proj.] - Q2 24 20 [+] 5

Corequisite :

INFO9015-1 - Logic for Computer Science

Other optional courses

INFO2051-1 *Object-oriented programming on mobile devices* (english language) - - Q1 15 10 [+] 5

Laurent MATHY - [90h Proj.]

INFO0064-2	<i>Embedded systems</i> (english language) - Bernard BOIGELOT	-	Q1	25	20	-	3
INFO2055-1	<i>Embedded systems project</i> (english language) - Bernard BOIGELOT - [60h Proj.]	-	Q2	-	-	[+]	2
	Corequisite : INFO0064-2 - Embedded systems						
INFO0060-1	<i>Introduction to computer systems verification</i> (english language) - Bernard BOIGELOT, Pascal FONTAINE - [20h Proj.]	-	Q2	20	20	[+]	5
	Corequisite : INFO9015-1 - Logic for Computer Science INFO0016-1 - Introduction to the theory of computation						
MECA0524-1	<i>CAD & Geometric Algorithms</i> - Eric BÉCHET - [60h Proj.]	-	Q1	20	20	[+]	5
MATH0461-2	<i>Introduction to numerical optimization</i> (english language) - Quentin LOUVEAUX - [25h Proj.]	-	Q1	30	20	[+]	5
MATH0462-1	<i>Discrete optimization</i> (english language) - Quentin LOUVEAUX - [25h Proj.]	-	Q2	30	20	[+]	5
	Corequisite : MATH0500-1 - Introduction à l'algorithmique numérique						
GBIO0030-1	<i>Computational approaches to statistical generics</i> (english language) - Kristel VAN STEEN - [35h Proj.]	-	Q2	25	15	[+]	5
	Prerequisite : GBIO0002-1 - Genetics and bioinformatics						
GBIO0031-1	<i>Learning from genomic data</i> (english language) - Kristel VAN STEEN - [150h Proj.]	-	Q2	-	-	[+]	5
	Prerequisite : GBIO0002-1 - Genetics and bioinformatics						
INFO9012-1	<i>Parallel Programming</i> (english language) - Pascal FONTAINE	-	Q2	25	25	-	5
INFO9015-1	<i>Logic for Computer Science</i> (english language) - Pascal FONTAINE	-	Q1	24	20	-	5
INFO9016-1	<i>Advanced Databases</i> (english language) - Christophe DEBRUYNE - [20h Proj.]	-	Q2	24	20	[+]	5
INFO9023-1	<i>Machine Learning Systems Design</i> (english language) - Thomas VRANCKEN - [17h Labo., 18h Proj.]	-	Q2	17	-	[+]	5
	Corequisite : ELEN0062-1 - Introduction to machine learning						

Internships and projects (maximum 15 credits)

ASTG9005-1	<i>Research Internship</i> (english language) - Benoît DONNET - [300h Proj.]	B2	TA	-	-	[+]	10
	Prerequisite : PROJ0010-1 - Software project engineering and management						
ASTG0021-1	<i>Technical company internship</i> (english language) - Laurent MATHY - [300h Proj.]	B2	TA	-	-	[+]	10
	Prerequisite : PROJ0010-1 - Software project engineering and management						
	<i>Notice :</i> the two company internships are mutually exclusive						
PROJ0011-1	<i>Personal student project</i> (english language) - Bernard BOIGELOT, COLLÉGIALITÉ - [150h Proj.]	B2	TA	-	-	[+]	5

Additional ECTS Master in computer science (for students who have not obtained a Bachelor's degree in computer science)

Students that are admitted to the master of science in Computer Science without having obtained a degree of bachelor in Computer Science must add to their programme the following list of courses, to be taken in the first year of the master.

Compulsory Courses (B0 : 27Cr)

INFO9012-1	<i>Parallel Programming</i> (english language) - Pascal FONTAINE	B0	Q2	25	25	-	5
INFO0062-1	<i>Object-oriented programming</i> (english language) - Bernard BOIGELOT - [20h Proj.]	B0	Q2	25	20	[+]	5
INFO0054-1	<i>Functional programming</i> - Christophe DEBRUYNE - [20h Proj.]	B0	Q1	24	24	[+]	5
MATH2019-1	<i>Mathematics for computing 1</i> - Emilie CHARLIER	B0	Q1	26	26	-	5
INFO0027-3	<i>Programming techniques, Software patterns</i> (english language) - Laurent MATHY - [30h Proj.]	B0	Q2	10	10	[+]	2
MATH0495-1	<i>Elements for calculating probabilities</i> - Part 1: <i>Analysis tools for probabilities</i> - Laurent LOOSVELDT - Part 2: <i>Probability theory</i> - Laurent LOOSVELDT	B0		6	-	-	5
				20	-	-	

Optional courses (B0 : 3Cr)

Students who pass the entrance test may replace LANG6011-1 with the advanced course LANG0988-1 "Advanced for ICT studies". (B0 : 3Cr)

LANG6011-1	<i>Remedial English for Computer Science</i> (english language) - Adnan VESSEUR	B0	Q2	3	27	-	3
LANG0988-1	<i>Advanced English for ICT studies</i> (english language) - Adnan VESSEUR	B0	Q1	5	25	-	3

Additional ECTS Master in computer science (aimed at bachelors in computer science from non university higher education institution)

Compulsory Courses (B0 : 57Cr)

MATH0500-1	<i>Introduction to numerical algorithmic</i> - Quentin LOUVEAUX - [6h Labo., 45h Proj.]	B0	Q1	24	14	[+]	5
INFO0902-1	<i>Data structures and algorithms</i> - Pierre GEURTS - [40h Proj.]	B0	Q2	26	20	[+]	5
INFO9012-1	<i>Parallel Programming</i> (english language) - Pascal FONTAINE	B0	Q2	25	25	-	5
INFO0010-4	<i>Introduction to computer networking</i> (english language) - Guy LEDUC - [12h Labo., 40h Proj.]	B0	Q1	32	2	[+]	5
INFO0012-2	<i>Computation structures</i> (english language) - Pascal FONTAINE, Laurent MATHY - [40h Proj.]	B0	Q1	26	26	[+]	5
INFO0940-1	<i>Operating systems</i> (english language) - Laurent MATHY - [30h Proj.]	B0	Q2	30	6	[+]	5
INFO0062-1	<i>Object-oriented programming</i> (english language) - Bernard BOIGELOT - [20h Proj.]	B0	Q2	25	20	[+]	5
INFO0054-1	<i>Functional programming</i> - Christophe DEBRUYNE - [20h Proj.]	B0	Q1	24	24	[+]	5
MATH2019-1	<i>Mathematics for computing 1</i> - Emilie CHARLIER	B0	Q1	26	26	-	5
INFO0027-3	<i>Programming techniques, Software patterns</i> (english language) - Laurent MATHY - [30h Proj.]	B0	Q2	10	10	[+]	2
MATH0495-1	<i>Elements for calculating probabilities</i> - Part 1: <i>Analysis tools for probabilities</i> - Laurent LOOSVELDT - Part 2: <i>Probability theory</i> - Laurent LOOSVELDT	B0		6	-	-	5
				20	-	-	
INFO8006-1	<i>Introduction to artificial intelligence</i> (english language) - Gilles LOUPPE - [45h Proj.]	B0	Q1	25	20	[+]	5

Optional courses (B0 : 3Cr)

Students who pass the entrance test may replace LANG6011-1 with the advanced course LANG0988-1 "Advanced for ICT studies". (B0 : 3Cr)

LANG6011-1	<i>Remedial English for Computer Science</i> (english language) - Adnan VESSEUR	B0	Q2	3	27	-	3
LANG0988-1	<i>Advanced English for ICT studies</i> (english language) - Adnan VESSEUR	B0	Q1	5	25	-	3